UNIVERSIDADE CATÓLICA PORTUGUESA

Implement, measure, and improve Agile

A Framework for Agile Adoption

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Católica Porto Business School
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A Framework for Agile Adoption

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by

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And so it ends an incredible academic cycle that, for many moments, I thought would never happen. A career and studies switch is always a scary moment, even more when it takes 3 years to happen and with countless rises and falls in between. Even so, the Master's comes to an end and what remains are a set of excellent experiences, partnered with fantastic people along the way.

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Resumo

Com o mundo cada vez mais conectado e as sociedades cada vez mais globalizadas, as organizações procuram acompanhar este ritmo através da sua transformação constante. Por forma a manter o seu nível de competitividade, as empresas necessitam de estar na linha da frente da inovação, da transformação digital, e da melhoria contínua.

A evolução da metodologia Agile vem permitir que empresas se adaptem a novas realidades e sejam capazes de acompanhar a complexidade e exigência dos mercados e dos seus stakeholders. O Agile traça agora um ritmo que transcende a aplicabilidade ao desenvolvimento de software e as organizações começam cada vez mais a transferir os valores e os princípios Agile às suas equipas, para que estas entreguem mais valor, com menos risco e de forma mais célere.

A literatura revela-se extensa relativamente aos benefícios do Agile, mas restringe a metodologia aos projetos e principalmente ao contexto de desenvolvimento de software. No contexto desta tese, e em conjunto com empresas de diferentes dimensões e indústrias, tentamos perceber o que as impulsionou a adotar Agile, quais os benefícios e desafios da sua implementação, qual o presente e futuro da metodologia, e qual o impacto na gestão da organização como um todo.

Procuramos responder à questão de investigação "Como é que uma empresa pode adotar Agile?" e, como resultado, desenvolvemos um f*ramework* que compreende sete fases que todas as empresas devem percorrer para uma adoção e imersão ao contexto Agile.

Palavras-chave: *Agile, Scrum, Kanban, Scrumban, SAFe*, Organizações Ágeis
Palavras: 9875

Abstract

As the world becomes increasingly connected and societies become more globalised, organisations seek to keep up with this pace through constant transformation. In order to maintain their level of competitiveness, companies need to be at the forefront of innovation, digital transformation, and continuous improvement.

The evolution of the Agile methodology allows companies to adapt to new realities and be able to keep up with the complexity and demands of the markets and their stakeholders. Agile now sets a pace that transcends applicability to software development and organisations are increasingly transferring Agile values and principles to their teams so that they deliver more value, with less risk and more quickly.

The literature is extensive regarding the benefits of Agile but restricts the methodology to projects and mainly to the software development context. In the context of this thesis, and together with companies of different sizes and industries, we try to understand what drove them to adopt Agile, what are the benefits and challenges of its implementation, what is the present and future of the methodology, and what is the impact on the management of the organisation as a whole.

We sought to answer the research question "How can a company adopt Agile?" and, as a result, we developed a framework comprising seven phases that all companies should go through, for a more complete Agile adoption and immersion.

Keywords: Agile, Scrum, Kanban, Scrumban, SAFe, Agile Organisations
Words: 9875

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Introduction

Most management of routine activities requires planning, alignment of goals, and optimisation of resources, in general, it can be made a comparison of the processes needed to manage projects. Nowadays, companies face constant and challenging changing environments, and they must be able to evolve, adapt, and respond to business transformation and new market needs. According to (Wiechmann et al., 2022), agility presents a promising option to overcome fast-moving business environments and quickly react to changing market conditions. In addition, value creation in the future is the result of fast adaptability and adaptation of the organisation to market changes in the present. Agility is when an organisation with incredible internal capabilities meets the dynamic needs of the marketplace.

Agile methodologies are strongly present in the software development business; however, non-software environments lack agility in new product development as they still rely on traditional approaches (Amorim, 2022). That is the case for most SMEs, that still rely on old models, normally related to family businesses, where the receptivity and ability to change are low. These are also distant from digital transformation, creating more barriers to the establishment of a more agile environment. Agile has expanded from its origins in software development in the 90s to other industries such as telecommunication, baking, mining, oil, gas, and manufacturing (Raedemaecker et al., 2020).

It is perceived that the adoption of Agile represents a growing trend that companies are integrating not only to manage their projects but also to change their organisational management. For most companies, these changes aim to create a more collaborative, inclusive, transparent, and agile environment and workplace. Additionally, it must be comprehended that Agile should not be enforced equally among all teams and departments, as each company has its attributes and specification (Amorim, 2022).

Still, and considering the above, companies that do not have some kind of Agile method may start to become less attractive compared to the ones that have. The proven internal and external benefits of Agile such as value delivery, product quality, constant collaboration and feedback, and employee satisfaction, among others are key when customers are choosing which companies to work with or for skilled workers to decide which companies to work for (Solinski & Petersen, 2016).

This dissertation is structured into three chapters. The first chapter presents a literature review that highlights the current state of the art of tradition and Agile methodologies. The second chapter presents the research questions, the methodology, and the introduction to the companies interviewed. The third chapter analyses the Agile adopted by the interviewed companies as well as a discussion and a Framework for Agile adoption for companies. The conclusion presents the main research contributions, limitations, and suggestions for future work.

Chapter 1
Literature Review

To understand the context of agile management, this literature review explains two traditional approaches – Waterfall and Stage-Gate – and the Agile approach with its most relevant methods. This comparison will point out the main advantages and disadvantages of each approach and, in the Agile method, a deeper analysis will be conducted by summarizing the main elements of Extreme Programming, Scrum, and Kanban.

1.1. Traditional Approaches

Formerly, project management relied on practices and methodologies, which are now referred to as the traditional approach. Some examples are The Waterfall and the Stage-Gate model. The first one was properly introduced in 1970 by Royce (Royce, 1970), where he tried to reach solutions to better manage the development of large software systems after his experiences in developing software for spacecraft missions. The waterfall method is static (Kettunen & Lejeune, 2020), highly structured, with well-defined requirements, and does not allow disruption during the project timeframe (Andrei et al., 2019). This method splits the project into fixed phases which are sequentially relying on the previous one. Figure 1 illustrates the model presented by Royce. This dependability holds back the design stage if the analysis is not finished and holds back coding if the design is still ongoing.

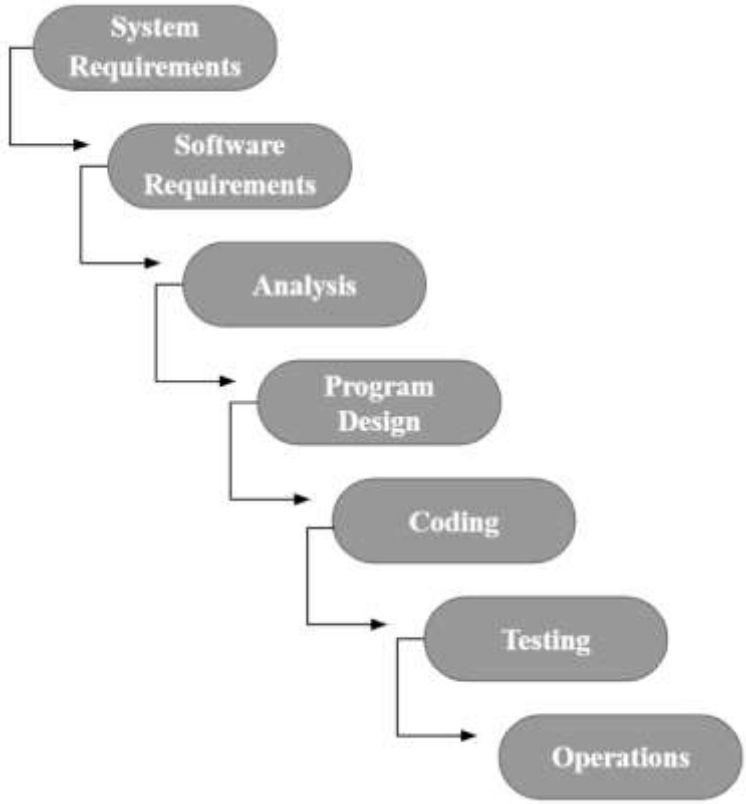

Figure 1: Waterfall model
Source: Adapted from Royce (1970)

In this process, the expected results are aligned early and clearly at the beginning of the project, and a timeline of activities is set from the start to the completion of the project (Thesing et al., 2021). The project plan is planned holistically with work packages, responsibilities, and deadlines, clear of ambiguities for the project team to follow until the end (Andrei et al., 2019; Thesing et al., 2021). This provides stability, structure, and predictability of resources to the project. Regarding the dependability and iterative relationship between successive phases, Royce represented a second scheme which demonstrates the interactions between successive steps – Figure 2.

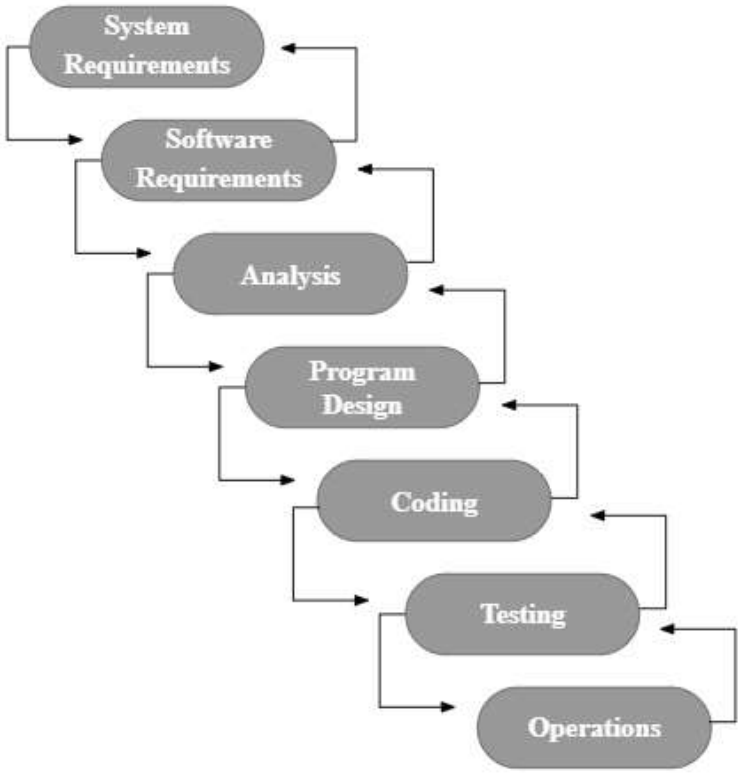

Figure 2: Waterfall model with interaction between phases
Source: Adapted from Royce (1970)

However, these interactions over dependency are beneficial if the project scope stays still and the deliverables unchanged. In real-life scenarios, customers often change their requirements and opinions over different features, which leads to some, if not all, project stages being reassessed (Andrei et al., 2019). When reassessed, projects take longer and become more costly. Petersen et al. (2009) conducted empirical research aiming to validate or contradict the main problems pointed out when using the waterfall approach. Table 1 is a literature overview made by the authors which brought nine problems usually identified:

1. High effort and costs for writing and approving documents for each development phase.
2. Extremely hard to respond to changes.
3. When iterating a phase, the iteration takes considerable effort for rework.
4. When the system is put to use the customer discovers problems of early phases very late and the system does not reflect current requirements.
5. Problems of finished phases are left for later phases to solve.
6. Management of a large scope of requirements that have to be baselined to continue with development.
7. Big-bang integration and test of the whole system in the end of the project can lead to unexpected quality problems, high costs, and schedule overrun.
8. Lack of opportunity for customer to provide feedback on the system.
9. The waterfall model increases lead-time due to that large chunks of software artifacts have to be approved at each gate.

Table 1: Issues in Waterfall Development
Source: Adapted from Petersen et al., 2009

It was additionally identified that there is a lack of opportunity for the customer to provide feedback, generating fewer moments to clarify misunderstandings. This creates pressure on the requirements and verification, making the waterfall model not suitable for large-scale project development.

Another traditional approach is stage-gate. Originally introduced in the 1980s by Robert G. Cooper, stage-gate emerged from a product war in the fields of electronic chips, cameras, and machine tools, among others. The dispute was on the ability to get better innovation processes, to deliver products to the market faster and with fewer failures. Thus, companies started using stage-gate as a tool to manage, direct, and control product innovation efforts. A stage-gate system is always divided into stages and gates, recognising it as a manageable process in product development (Cooper, 1990). Preceding each stage is a gate which marks a Go/Kill/Hold/Recycle decision about the project and also established an action plan for the next stage. A product does not pass to the next stage if the predetermined set of deliverables specified for each gate is not accomplished. A usual stage-gate system includes four to seven stages and gates, which are

dependent on the company or department (Cooper, 1990). Figure 3 represents a typical Stage-Gate system from the Idea to the Post-Implementation Review.

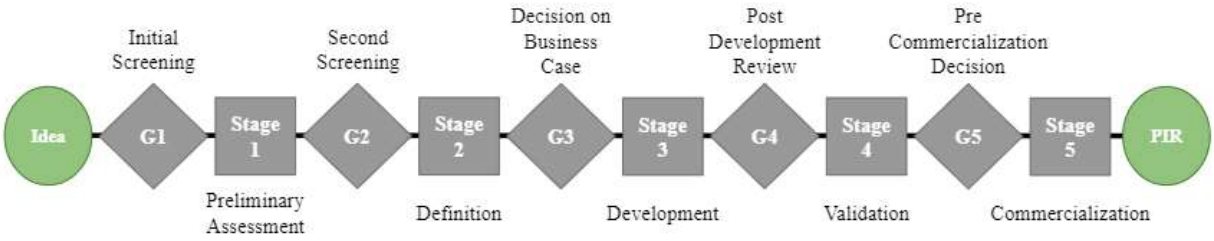

Figure 3: Stage-Gate model
Source: Adapted from Cooper (1990)

The advantages of stage-gate in project management are mainly an increase in development speed, better quality in the process, improvement in team discipline, and better performance (Cooper, 2001; Cooper et al., 2002). However, as (Sethi & Iqbal, 2008) present in their study, gate review needs to be strict, increasing the inflexibility of projects. Additionally, in growingly complex projects with major strategic initiatives, targets and goals are not clear, and the projects' workload is underestimated due to uncertainty (Lenfle & Loch, 2010).

Booth approaches (Waterfall and Stage-Gate) are mainly defined by predictable and linear project planning practices that aim to achieve clear and well-determined objectives (Cooper, 1990; Gemino et al., 2021).

1.2. Agile Approach

The lack of flexibility of traditional project management approaches, in addition to the unpredictability of real-life scenarios and the increase in complexity of business environments, urged the need for companies to adapt their methods of managing projects (Nerur et al., 2005).

In the early 00s, a group of software methodologists met to reach common ground on why software development projects succeeded or failed. The Agile

Manifesto1 starts by stating its four values as "Individuals and interactions over processes and tools"; "Working software over comprehensive documentation"; "Customer collaboration over contract negotiation"; and "Responding to change over following a plan" (Beck et al., 2001). These four values allied to the twelve principles were originally meant to be applied in software development, but it was later found that these could also be applied in services, manufacturing, and production as the principles were replicable (Conforto et al., 2014).

In reality, Agile is a way of working and pondering, and teams use Agile tools such as Daily Stand-up meetings; Backlog; Sprints; or even Kandan Boards, but no single one can define the approach as a whole. Rather than using sequential process development as in Waterfall, Agile teams use sprints or quick cycles to deliver early prototypes and respond rapidly to feedback and changes over time (Raedemaecker et al., 2020). To do so, teams must be well organised, with high levels of communication, resulting in more flexibility and agility to face challenges. Pioneers of Agile also consider it a better fit for rapidly changing markets in which the value delivery is built on better customer experiences and continuous innovation, changing static "products" into continuously evolving "services" (Denning, 2018).

Bermejo et al. (2014) explained that the Agile principles that most influence a project's success are Team capacity, Communication with customers, Environmental configuration, and Culture. Agile teams are small and multidisciplinary and are best oriented to innovation. They break elaborate problems into smaller modules, making it easier to adapt to change, rather than

[1] In February 2001, seventeen independent software practitioners representing several software methodologies gathered to discuss software development methodologies and reach common ground on the topic. The Agile Alliance was created by these developers and The Agile Manifesto was built containing four values and twelve principles for agile software development. The Agile Manifesto is public on the Agile Alliance website (http://agilemanifesto.org/). Agile was not born at that specific moment. Agile values and principles were already being used before in software development. However, it was at that moment, with The Agile Manifesto, that the ideas were made concrete and that the philosophical mindset for software development was created.

following strict plans (Rigby et al., 2018). In the sample of companies visited by Denning (2018), there was no "one size fits all", but firms which implemented Agile as a management approach had greater responsiveness to real customer needs, improved customer satisfaction, and experienced higher staff engagement.

Contrary to traditional methodologies that rely on processes, Agile methodologies deal with unpredictability by relying on people, their creativity, each team's unique strengths, and strong collaboration. Agile methodologies "are characterized by short iterative cycles of development driven by product features, periods of reflection and introspection, collaborative decision making, incorporation of rapid feedback and change, and continuous integration of code changes into the system under development" (Cockburn & Highsmith, 2001).

Nerur et al. (2005) Compared the traditional and Agile methodologies applied to software development and presented the following results:

	Traditional	**Agile**
Fundamental Assumptions	Systems are fully specifiable, and predictable, and can be built through meticulous and extensive planning.	High-quality, adaptive software can be developed by small teams using the principles of continuous design improvement and testing based on rapid feedback and change.
Control	Process centric	People centric
Management Style	Command-and-control	Leadership-and-collaboration
Knowledge Management	Explicit	Tacit
Role Assignment	Individual - favours specialization	Self-organizing teams - encourages role interchangeability
Communication	Formal	Informal
Customer's Role	Important	Critical

	Traditional	Agile
Project Cycle	Guided by tasks or activities	Guided by product features
Development Model	Life cycle model (Waterfall, Spiral, or some variation)	The evolutionary-delivery model
Desired Organizational Form/Structure	Mechanistic (bureaucratic with high formalization)	Organic (flexible and participative encouraging cooperative social action)
Technology	No restriction	Favours object-oriented technology

Table 2: Traditional versus Agile Software Development
Source: Adapted from Nerur et al. 2005

Considering that history and literature give us a wide range of perspectives and listings on Agile methods, we are going to consider the overview conducted by Dybå & Dingsøyr, (2008), presented in Attachment 1.

So, Agile is more than the frameworks or the practices underlying. It gathers all frameworks and practices which are based on the core values and principles of the Agile Manifesto. Firms who were able to strongly adopt Agile in their management framework consider themselves as "being agile", and not only "doing Agile". The most described and used Agile methods are Extreme Programming – XP and Scrum (Dingsøyr et al., 2012). We are going to describe those and, in addition, we will also describe the Kanban management method and SAFe.

1.2.1. Extreme Programming

Extreme Programming was first used by Kent Beck in the '90s on a project called Chrysler Comprehensive Compensation (C3). In 1999, he published the first edition of the book Extreme Programming Explained, where he explores the development and application of the methodology on the project, and its use in the overall software development (Beck, 1999). Beck (1999) starts by saying that "XP is a lightweight, efficient, low-risk, flexible, predictable, scientific, and fun

way to develop software", and that "XP is a discipline of software development". In 2004 Beck rewrote the book with his experiences and personal learnings after five years of experimenting with the framework. In this second edition, he focused on the inner capabilities of people, their relations with others, collective work & growth, and how that affects productivity and programming outputs. XP is then: giving up old, ineffective technical and social habits in favour of new ones that work; fully appreciating yourself for total effort today; striving to do better tomorrow; evaluating yourself by your contribution to the team's shared goals; asking to get some of your human needs met through software development (Beck, 2004).

In short, XP is an Agile software development framework that aims to produce higher-quality software and higher quality of life for the development team. Belonging inside the Agile Methods scope, XP shares some of its orientations by emphasising teamwork, considering managers, customers, and developers all equal partners in a collaborative team, and fostering a simple, yet effective work environment enabling teams to become highly productive and efficient. The five values of XP are communication, simplicity, feedback, courage, and respect (Wells, 2013).

1.2.2. Scrum

In the early 1990s, Ken Schwaber and Jeff Sutherland formulated initial versions of what would later be formally called Scrum, to help organisations that struggled with complex development projects (*Ken Schwaber*, n.d.).

In 2010 they wrote the first version of the Scrum Guide, to help practitioners and researchers to better understand Scrum. The Guide and Scrum itself have been evolving through small, and functional updates (Schwaber & Sutherland, 2020).

According to Carneiro et al. (2018); Hayat et al. (2019); and Schwaber and Sutherland (2020), Scrum is formed by three major components: Roles, Processes, and Artifacts. Among the Roles, we mainly identify the project team (or Scrum Team), which gathers the Scrum Master, the Developers, and the Product Owner. The most important role of the Scrum Master is to be the facilitator and responsible for disseminating the values and practices to the team and the organisation. The Developers are a self-organised, multifunctional team, which works towards the goals of each sprint. The Product Owner gives the requirements of the project and manages the product backlog. Regarding the Processes or Scrum events, they include the kick-off, the sprint planning, the sprint, the daily scrum, and the sprint review - see Appendix 1. Schwaber and Sutherland (2020) also consider the existence of a retrospective meeting. These events are used to create regularity and to minimise the need for unplanned meetings. Finally, the Artifacts include the product backlog, sprint backlog, and graphics (burn-down charts). These are intended to maximise transparency and improve information flow in the team. The product backlog is a prioritised list of requirements intended for the project. The Sprint Backlog is a plan made by and for the developers to map their work during the sprint to achieve the goals of the spring. The work done is measured by the use of graphics/burn-down charts or through the Scrum board.

The three main pillars of Scrum are transparency, inspection, and adaptation. Transparency seeks to keep everything visible to everyone involved. Inspection must be done frequently to detect variations or possible problems. Finally, adaptation must be made as soon as possible to minimise further deviations. Companies use Agile project management methods to be more flexible and respond more rapidly to uncertainty. Scrum, as one of the most popular, provides greater team interaction and allows project tracking to be more dynamic, making the organisation more agile. Therefore, Scrum becomes a

versatile alternative for organisations to manage activities outside the context of projects (Carneiro et al., 2018).

According to Mann and Maurer (2005), the use of Scrum increased customer satisfaction, as customers believed that the daily meetings were helpful to reduce confusion and to keep them up to date about the project as it fostered more customer involvement. Internally, the introduction of Scrum decreased projects over time, and developers were more satisfied with the outcomes.

In their study, Carneiro et al. (2018) verified the application of Scrum for the management of work routines in a public company. They demonstrated the adaptation of Scrum/Agile concepts and their use in a functional organisational structure. The use of Scrum allowed:

- Planning of the work to be carried out by the team.
- Transparency in the evolution of work, with the visualization and discussion of the advances of deliveries over time.
- Work fluency, systematization of activities, dimensioning of effort to perform tasks, and planning of activities to be developed at each sprint and meeting.
- Constant communication among team members encourages integration and collaboration in the sector.
- Clear measurement of what was produced by the team.
- Higher quality in deliveries, through the understanding of requirements, monitoring and constant feedback.
- Improvement of practices, such as the insertion of Scrum indicators.

What allows Scrum to be flexible and able to be applied in different contexts are its three fundamental pillars: transparency, inspection, and adaptation, which are aligned with the values and principles of Agile.

1.2.3. Kanban

Kanban has its origins in the Toyota Production System (Ohno & Bodek, 1988), and in Lean manufacturing (Womack et al., 2007). Reportedly, David Anderson was the first to adopt Kanban in software development at Microsoft in 2004. Anderson (2010), describes Kanban as a change method that puts into practice Lean principles as it creates value by optimising flow management. Kanban also focuses on limiting the development Work In Progress, visualising workflow, and reducing the cycle time of the development value stream. It is even less rigid compared to Scrum, as there are no roles or processes pre-defined. The Kanban board allow collaboration from multiple teams and individuals in all kinds of tasks and adopts techniques from both XP and Scrum (Hofmann et al., 2018; Kniberg & Skarin, 2010).

There is still no consensus on if Kanban is a complementing tool/system of Agile methodologies or if it is a methodology itself (Lei et al., 2017; *The Kanban Method*, n.d.; Weflen et al., 2022).

The 16th Annual State of Agile Report (2022) presented a survey conducted to 3,220 people where 56% of the respondents say they use Kanban and 87% use Scrum (*16th State of Agile Report*, 2022). The same report shows a growing interest in a hybrid process between Scrum and Kanban, called Scrumban (9% of adopters in 2022, compared to 6% in 2021). Scrumban takes elements from Scrum and Kanban and combines them into a hybrid Agile methodology designed to respond to dynamic environments. From Scrum, it gathers the daily stand-up meetings, and the self-organised teams, and crosses them with a pull-driven mechanism that ensures continuous workflow and a clear visualisation of the phases in the project lifecycle prevenient from Kanban.

1.2.4. Scaled Agile Framework

One of the most recent methods introduced regarding Agile is The Scaled Agile Framework (SAFe). SAFe integrates principles, practices, and competencies from Lean and Agile to help organisations to respond faster to changing business models, markets, and others, enhancing their business agility (Leffingwell, 2023). The framework allows companies to implement Lean-Agile practices at an enterprise scale, promoting the benefits of both practices.

SAFe was released in 2011 by Dean Leffingwell and Drew Jemilo as they created a framework to help organisations design better systems that meet customers' needs. It integrates four levels of configurations designated by Essential SAFe, Large Solution SAFe, Portfolio SAFe and Full SAFe. The four core values of SAFe are Alignment, Transparency, Relentless Improvement, and Respect for People, and are aligned with the list of ten Framework principles (Leffingwell & Knaster, 2018; *SAFe Lean-Agile Principles*, 2022):

1. Take an economic view.
2. Apply systems thinking.
3. Assume variability and preserve options.
4. Build incrementally with fast, integrated learning cycles.
5. Base milestones on objective evaluation of working systems.
6. Make value flow without interruptions.
7. Apply cadence and synchronise with cross-domain planning.
8. Unlock the intrinsic motivation of knowledge workers.
9. Decentralize decision-making.
10. Organize around value.

According to Boehm (2002), "Organisations must carefully evolve toward the best balance of Agile and plan-driven methods that fits their situation." No organisation can ignore the benefits of Agile and global Agile trends. However, the adoption of Agile must be thoughtful, as it will present challenges to companies as different teams and employees respond differently to change.

Chapter 2
Methodology

2.1. Research Question and Methodology

Following the literature review and aiming to help companies address the change to Agile, we focus on the following research question, which is later broken down into two research questions.

RQ: How can a company adopt Agile?

- RQ1: How can companies develop their own process of Agile adoption?
- RQ2: What is required for a mature implementation and continuous y improvement?

The baseline research question is usually the main interrogation for a company that is trying to become more Agile. The two resulting questions allow them to dissect the thinking process into two main questions “How to do it?” and “How can we assess and improve?”

To answer these questions, we conducted a qualitative research based on an exploratory study with multiple interviews of companies that are using Agile. Through a series of semi-structured interviews, we analysed different companies regarding the adoption, the transition, the challenges and opportunities, and the improvement of the Agile methodology. The criteria for choosing this research strategy was due to the need to collect information with a high level of quality and detail directly from specialists. This allowed us to have complete and detailed explanations from the companies, something that would not be possible

with other research strategies. As Reid (1996) emphasises, qualitative studies are not meant to represent large populations, rather, small and purposeful samples are targeted to collect and articulate relevant information. However, this method has weaknesses such as the need to adapt the interview and questions based on the information that is being shared by the interviewee in real time; the inaccuracy from the interviewee due to poor recall or lack of in-depth knowledge in some areas; and the lack of visual representation of processes and key tools/actions that were only possible through direct observation.

2.2. Data Collection and Analysis

To better understand how companies adopt Agile methodology, we collected data from five national and international companies operating in Portugal. Company A and Company C opted for anonymity, not allowing identity identification. The collection of data was through semi-structured interviews conducted during February and March, mostly online, with a duration of one hour and fifteen minutes. The interviewees were professionals coordinating some sort of Agile team/operation within the company. All of the interviewees have more than seven years of operating with the methodology, being currently in mid-senior level positions in IT, Project Management, Business Development, and Agile Implementation. The companies selected were initially to be representative of non-tech industries, but we soon realised that most of the companies related to manufacturing, retail, education, or sales still do not operate in an Agile way. Thus, the companies selected are mostly operating in the technology industry or have a considerable part of the business in tech development or digital innovation/transformation. Table 4 provides the synthesis of the companies interviewed. The perception of the need for Agile, and the challenges and benefits before and after implementation are observable in all companies, even if with different intensities.

We chose interviews as our source of data collection. This way, we focused on pre-selected companies and collected feedback directly from the ones who started the company's transition to Agile or who work daily with the methodology. On the other hand, we could have done a more in-depth case study of a single company, but we would have missed the opportunity to understand how many others respond to the same challenges, adversities and opportunities that arise during implementation. Nonetheless, we have encountered constraints regarding the willingness of companies and their professionals to cooperate and spend time in interviews and answering collaboration requests. Another limitation was the inability to view dashboards, mapped processes, and other tools related to the methodology, as most interviewees were not allowed to share such documentation. The sample in a qualitative methodology should not be exhaustive, however, the sample in this investigation could have been larger, which would have been beneficial to represent a greater variety and representation of Agile implementation by companies in Portugal. The interview structure is described in Appendix 2.

The interviews incorporated fifteen main questions, subdivided into several subheadings. Composed of open-ended and rating scale questions, these were prepared considering three strategic pillars that we aim to cover:

1. Agile Adoption (past)
2. Agile Implementation (present)
3. Agile Improvement (future)

Following this, we exported the output of the interviews based on seven key premises:

1. Reasons to implement Agile
2. Approaches to implement Agile
3. Opportunities and challenges during transition
4. The agile implemented

5. Measure the Agile usage
6. Continuous improvement in Agile
7. The future perspectives on Agile

2.3. The companies

Company A
• Age – 6 years
• Industry – IT Services and IT Consulting
• Dimension – 550 employees
• Operation – National and International
• Revenue – 21.5M€
Company A is a subsidiary of one of the biggest automotive groups with a revenue of 150.000M€ in 2022. This company was created as a fully independent agile company aiming to facilitate the development and improvement of digital products, by escaping the rigidity of the parent company. Company A is now scaling and achieving a level of complexity that urges the need for an internal restructure.

Company B – NOS
• Age – 9 years as NOS
• Industry – Telecommunication
• Dimension – 2350 employees
• Operation – National
• Revenue – 1.469M€ in 2021
NOS is one of the biggest telecommunication companies in Portugal, that offers industry services in B2B and B2C. Additionally, it is at the forefront of 5G innovation in Portugal with initiatives in education, health, smart cities, entertainment, and at a corporate level. The company adopted Agile in 2018 as they believe that a change in the company's mindset was needed to deliver more value to the customer and be more able to respond faster and with more openness to market changes.

Company C
• Age – 14 years as a new hub
• Industry – IT, Digital, and Accounting and Finance
• Dimension – 200 employees
• Operation – National and International
• Revenue – 48.1M€

Company C is a subsidiary of one of the world's biggest textile, and footwear brands, with a revenue of 22.511M€ in 2022. The analysed hub was created to continue the agile transformation that had already started within the company. The adoption of Agile started in 2021 but it is being implemented in phases by the parent company. The main focus areas were the administrative and financial services, but the success and growth of the hub led the company to allocate new services to the hub.
Company D – Continente Card Department | MC
• Age – 1959
• Industry – Food Retail Industry
• Dimension – 50 employees in the Department
• Operation – National and International
• Revenue – 5.978M€ in 2022
The Continente Card Department is part of the Customer division of MC, a national company with more than 40.000 employees. The Continente Card Department has fifty employees divided into six teams. One of which is the Business Development team, responsible for three strands, one of which is the Digital Transformation which incorporates the management, and development of the Continente Card App. The Business Development team adopted Agile in March 2018 after the launch of the Continente Card App
Company E – Farfetch
• Age – 2007
• Industry – Luxury Fashion
• Dimension – 6730 employees – National and Internationally
• Operation – National and International
• Revenue – 2.317M€ in 2022
Farfetch is the leading global platform for the luxury fashion industry. It was founded in 2007, pioneering the e-commerce marketplace for luxury boutiques. Farfetch sought agility from an early age, and leadership has always embraced the values and culture of Agile. At the time, a department of agility was created to disseminate Agile within the company. In October 2022, Farfetch dissolved the agility department, moving to a new model of decentralising the values of the department to all areas within the company, where each one must now apply the values of the methodology.

Table 3: Resume of the companies interviewed
Source: Own elaboration

Chapter 3
Analysis of Agile in practice

The analysis carried out aimed to summarize and highlight the reasons, methods, tools, guidelines, steps, achievements, and setbacks regarding the path to Agility of the interviewed companies based on the seven premises. The complete information is consolidated in Appendix 3.

3.1. The seven premises

These seven premises are the structural divisions made in the analysis of the interviews. Each of them represents an important premise in the adoption and management process of agility within an organisation.

3.1.1. Reasons to implement Agile

Each company has its specific reasons for a change in strategy, be it related to positioning, marketing, or internal structure, among others. However, the macro reasons are transversal to all – e.g., greater customer retention, more sales, optimization of resources, and lower costs, among others.

The same is reflected in the reasons for implementing Agile. In general, the analysed companies implemented Agile as a way to respond to needs such as:

- Flexibility
- Routine Management
- Distribution of Tasks

- Effective Deliveries
- Transparency
- Collaboration
- Continuous Improvement

In addition, some companies had their specific reasons such as:

- Create more and faster products
- Respond to market changes and customers' needs faster
- Support a strategy shift from a parent company
- Recover from a bad product launch
- Control the development and improvement of a product/project

These reasons can be different from company to company and change over time, representing different dimensions for each one. In Farfetch's case, Agile was adopted from the foundation and aimed to meet all needs mentioned above. However, more recently, they realized that agility in the company was so embedded that it needed a new format.

3.1.2. Approaches to implementing Agile

When deciding how the company would implement Agile, the interviewed companies followed paths that seem different, but focus on the same pillars. Companies A and C have created international subsidiaries that collaborate with the parent company in the transformation to a more agile organisation. Transversal to these companies was also the hiring of external entities and consultants to support the scaling of the methodology.

Companies B (NOS) and D (Continente Card Department) started an internal change process focused on one area of the company and are now looking to spread it to other areas of the organisation. Using mostly internal resources, these companies had a lot of support from top management in adopting the methodology. Company B (NOS) created a framework to support the internal

scaling and, together with external entities, reinforced training and coaching for its workers. In company D (Continente Card Department), adoption was sudden, with no implementation model, and was carried out mostly by one person, who only received specific training a few months later.

Company E (Farfetch) was founded with an agile vision and has been improving it over time. They followed an organisational motivation model and also had support from external entities. Recently, the strategy was adopted to the current vision and needs of the company resulting in an internal re-structure.

Crosswise to all were the steps they took at a micro level. All companies had an initial focus on internal improvement, which inevitably led to improved customer relations. Internally, the following changes stand out:

- Internal processes and documentation
- Departments and Leadership
- Internal training
- Internal culture
- Relationship with customers
- Budgeting

Companies C, B (NOS), and E (Farfetch) also had the creation of a dedicated agility department to guide and implement the different initiatives and steps of agility.

3.1.3. Opportunities and challenges during transition

All interviewed companies had different experiences and levels of complexity, which lead to different impacts and perceptions of what were their opportunities and challenges. The list below highlights the different opportunities and challenges pointed out by the companies.

Opportunities:

- Ability to start from scratch

- Opportunity to attract specialised young talent
- Top Management involvement and company-wide support
- Mindset and company's culture change
- Scaling a process that already existed
- Ability to have greater control of a product/project

Challenges:

- Missing stability
- Freedom was limited
- Understand how to scale it
- Missing the alignment between all areas of the company
- Working with other non-Agile teams used to traditional methods
- Prioritisation of new ideas
- Organisational rigidity
- Friction between teams
- Projects' size and complexity (multiyear projects)

3.1.4. The Agile implemented

In this premise, we have analysed what, in fact, is the company doing differently from the past, how are they now organised, and what changed in their daily tasks. In addition, we have analysed what were the main improvements and difficulties after the Agile implementation.

Starting with teams/departments organisation, none of the companies has all the areas working in an Agile way. Most companies believe that the methodology does not make sense to be applied to all areas. Backbone departments such as Human Resources, Finance, or Support may not benefit from this transition. Nonetheless, they can work with some type of Agile, such as Scrum or Kanban on daily tasks.

The decision of whether a team or project will be working in an Agile way is different between companies, and these have many formats according to each company. To facilitate de analysis, we explain each company separately.

Company A

- Work with a Holacracy[2] system with functional areas and no top-down structure. All product teams that effectively work on the product are Agile. As a result of the Holacracy system, these teams do not have a director. However, this system will change in the upcoming transformation of the company, as the company grew a lot in a short period.

Company B (NOS)

- A team is created (or maintained) to respond to a product development need and people are selected according to their expertise.
- These teams are transversal and multidisciplinary, with matrix management - team members are part of the team and also part of a main department.
- The decision to be Agile or not comes from the management team, which annually defines the strategy and the level of investment for each product, as well as whether it is fit to work with Agile.
- Every quarter, the Product Owner goes to the executive committee to propose actions or projects to be developed and their added value for the organisation. After this, investments and team priorities can be reviewed.

[2] A form of self-management that confers decision power on fluid teams (circles), and roles, rather than individuals (Bernstein et al., 2016). Holacracy empowers decentralised governance, as it embraces the elimination of people managers, over full autonomy of individual employees (Robertson, 2015). It aims to establish a dynamic and flexible workplace that allow for active participation from all individuals and prevents bureaucracy from inhibiting innovation (Gelles, 2015).

- Teams are now responsible and autonomous in the evolution of a given product, which improved the levels of collaboration, breaking down silos between teams with different origins and functions.

Company C

- There are work streams with product-oriented teams (e.g., The functional area of Finance is divided into Treasury and inside it, there are different product teams such as inventory balance, invoices, etc).
- Teams are multidisciplinary and product oriented. They are assembled to work on a certain product and receive specific training from the Agile Coaches.
- All of these areas have a meeting every 3 months to plan the actions for the next quarter.
- Each person reports only to the manager of the allocated functional area.

Company D (Continente Card Department | MC)

- Only a small part of the MC works in an Agile way.
- Of all six teams of the Continente Card Department, only the Card team works in an agile way, and only in the App product.
- This product team remains constant over time and works exclusively for this specific product.
- At MC, the decision to work in an Agile way comes from the Directors of each area, according to the needs.
- Currently, other teams are recognising the value that Agile brought to this team and want to implement it in their products or projects.

Company E (Farfetch)

- They do not see Agile as a way of working, but rather as a way of being.
- The company established decentralized programs, transforming team members into agile ambassadors within the teams. These ambassadors

belong to agility communities, and exchange impressions, answer questions and share best practices, promoting the continuous development of agility.

- The use of "Lean Portfolio Management" allows all departments to use the “same language” to manage their portfolios and interdependencies.
- Teams are usually multi-disciplinary, and the goal for them is to be stable and capable of determining the best way to work. In the past, new teams were created for each initiative, however, the experience did not go well, as teams were not stable and had no ownership of the initiatives.
- On a small-scale initiative, the person in charge is a representative of the area with the greatest impact on that initiative. In the case of an aggregation of initiatives (a project) with greater complexity, there is a Project Manager to guarantee the coordinated delivery of the different areas.

Concerning the Agile tools and methods, the companies do not differ much in the ones they adopted, being mostly:

- Scrum
- Kanban
- Scrumban
- Jira – Manage backlog and day-to-day
- Confluence – Manage documentation
- Miro – Visual representation

Company A, Company B (NOS), and Company E (Farfetch) tools are chosen based on each team's maturity and the project's complexity. There is flexibility in what tools to use for these companies, as each team defines what better fits them. Companies A and C introduced SAFe at an organisational level as a way to scale Agile within. Company E (Farfetch) also uses XP.

3.1.4.1. Main improvements after Agile implementation

A list was presented to the interviewees considering the most felt improvements after the Agile implementation. They were asked to consider a scale from 1 to 7 (1 ”not agreeing” and 7 “strongly agreeing”) and to rate their experience at the company. Figure 4 shows a visual representation of the answers. The most felt and consensual improvements are the continuous optimization of processes related to management and projects, the greater ability to react flexibly to changes in requirements, and the faster identification of errors.

Some companies considered that certain statements did not fit their reality, and, for that reason, the respective identifying colour does not appear in the line of the statement.

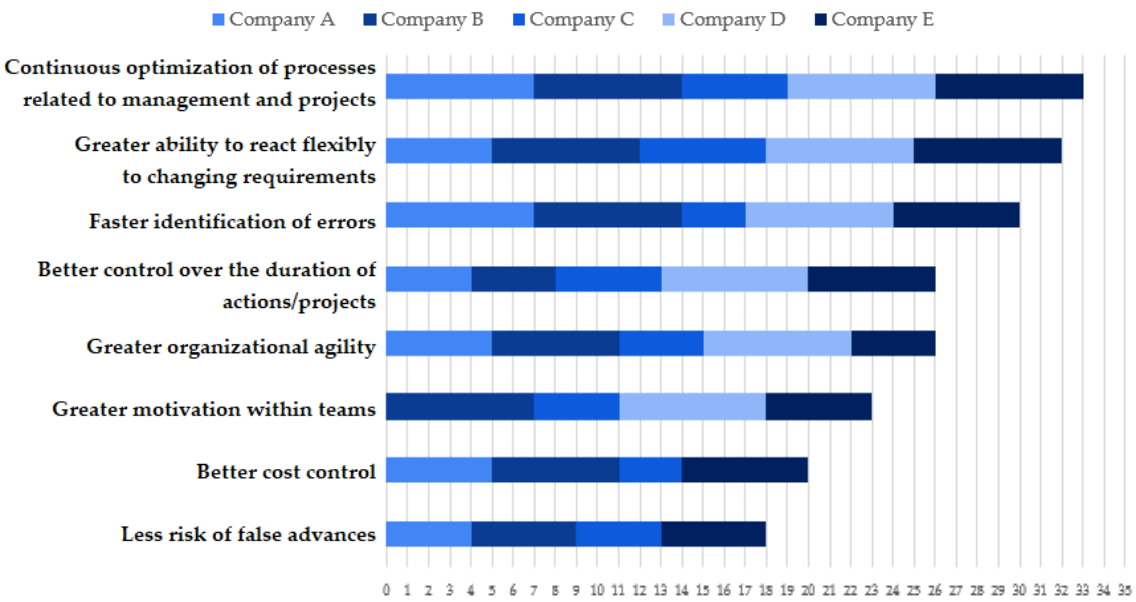

Figure 4: Answers about the impact of improvements after Agile implementation on a scale of 1 to 7
Source: Own elaboration

3.1.4.2. Main difficulties after Agile implementation

A list was presented to the interviewees considering the most felt difficulties after the Agile implementation. They were asked to consider a scale from 1 to 7 (1 ”not agreeing” and 7 “strongly agreeing”) and to rate their experience at the

company. Figure 5 shows a visual representation of the answers. The most felt and consensual difficulty is the high dependency between teams. This is not surprising, as Agility emphasizes collaboration between teams. Thus, companies need to analyse the roots of the problems and create mechanisms to dismantle these dependencies. On the other hand, the least felt problem was the lack of communication and collaboration, which is a good indicator of the Agile implementation within companies.

Some companies considered that certain statements did not fit their reality, and, for that reason, the respective identifying colour does not appear in the line of the statement.

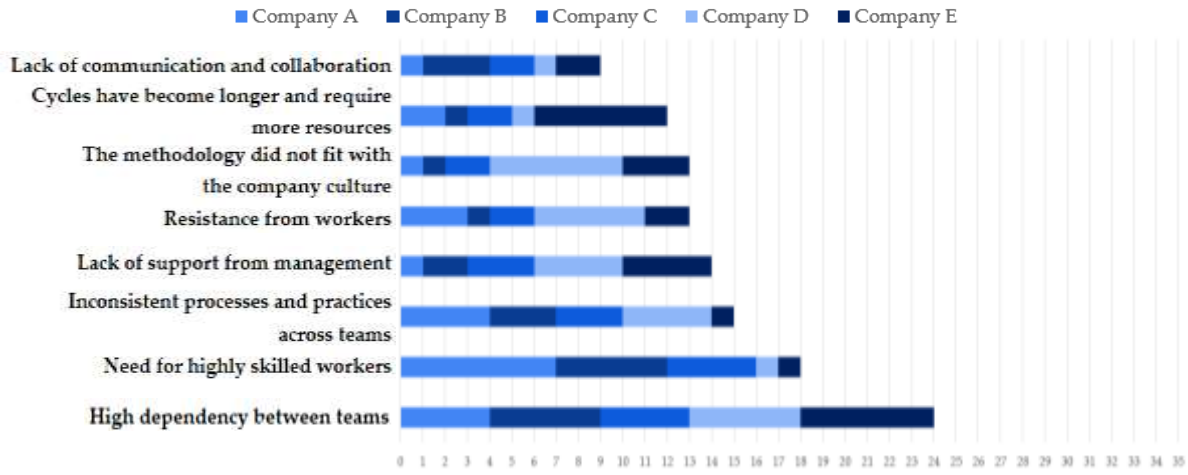

Figure 5: Answers about the impact of difficulties after Agile implementation on a scale of 1 to 7
Source: Own elaboration

3.1.5. Measuring the Agile usage

After implementing and using Agile, companies regularly evaluate its results. The use of assessments is transversal to all, and each company shapes them to its needs, with the indicators and frequency that they consider most relevant. Additionally, for these companies, assessments have several layers, which can be self-assessment, peer assessment, client assessment, and management assessment, among others.

In general, the most evaluated indicators are:

- Performance
- Productivity
- Customer satisfaction
- Team satisfaction
- Duration of projects
- Product development
- Team motivation
- Quality of deliveries
- Leadership

Companies A and C separated their assessments into Product Assessment and Team Assessment. Product Assessments were mainly to assess metrics regarding what each product is trying to achieve – sales, customer satisfaction, and product development, among others. Team Assessments assess metrics regarding teams' performance, learning, and skills, among others.

These and other metrics result in dashboards and allow teams to have a broader view of what is the current maturity of agility within and what needs to be improved. Companies A, B (NOS), C and E (Farfetch) use the agility department and its agile coaches to create and apply these assessments. The frequency varies between three, four or six months, depending on the company's strategy.

Results sharing is a sensitive topic, as most companies started with full sharing between teams and have now made this sharing more selective. For Companies B (NOS) and C, assessment results are shared only with the team. This came to prevent unhealthy competition and comparisons between teams. In addition, they reinforce that each team is unique and has its specificities and challenges.

Inside the Continente Card Department, there is no type of evaluation regarding Agile. However, concerning the product (App), KPIs are defined quarterly, and used for individual and team performance evaluations.

In the past, Company E (Farfetch), also applied an internal tool to assess the agility in all areas every six months, at all levels of the organisation. However, this tool is no longer being used, as they believed each area should internally assess its needs. Over time, they realized that the assessment was superficial and that there was no relationship between the results and the value delivery in each area. Currently, there is a survey that measures motivation, flexibility, retention, inclusion, and diversity in the organisation. It is not, nor has it ever been, the responsibility of the agility team to implement this survey.

3.1.6. Continuous improvement in Agile

After the assessment, companies develop initiatives that aim for continuous improvement of the agile environment. For most of the analysed companies, after each assessment, an action plan and improvement processes are put in place. The most widely used by these companies are:

- Training
- Consulting
- Recruiting
- Workshops
- Sharing best practices

For Company A there is a clear distinction between improving the Agile from a product perspective and from an organisational perspective. Regarding the former, reviews and improvement are integrated into Sprints Cycles, and the latter is improved by regularly checking staffing measures, offboarding, and people satisfaction.

Following the regularity of six months between every assessment, each team of Company B (NOS) has an action plan tailored to its needs which is monitored every two months by its respective agile coach. For them, the improvement must

be continuous, and the agility department guarantees a proper evolution and dissemination of the methodology.

Company C crosses the agility levels with its OKRs (Objectives and Key Results). Hence, they verify whether or not there is a higher level of agility from one assessment to another, resulting in an improvement plan for the next cycle of three months.

Company D (Continente Card Department | MC) relies on KPIs and on the Backlog to monitor monthly and quarterly improvement actions, respectively. The Business Development Team prefers to test different approaches and understand what the most effective ones are, allowing them to grow through experimentation over time.

In the past, Company E (Farfetch) used to develop action plans similar to the other analysed companies. Currently, the pace of continuous improvement is defined by each of the areas in a decentralised way. They understood that each team should be able to address problems quickly and internally and not rely on a third party and wait six months for the next assessment. In addition, teams improve naturally through their agile ambassadors.

3.1.7. The future perspectives on Agile

To remain competitive and improve over time, companies need to refine their processes and align their strategies. Agile follows the same path. As each company has its perspective of how its Agile will be in the future, we are going to analyse them individually.

<u>Company A</u>

- Is moving away from the Holacracy system to a product-oriented structure, similar to what is used by Company C.
- Aims to create communities of practice, allowing everyone to discuss and share knowledge about agile, identical to Company E (Farfetch).

- Wants to iterate and disseminate business agility to the parent company.

Company B (NOS)

- Although they do not believe the company will ever be 100% agile, they aim to create even more agile teams, escaping the IT bubble.
- The next steps are to measure the real impact that agility has on every stakeholder involved.
- Create more training content for POs and SMs so that they can continue to innovate and grow.

Company C

- Continue to evolve the methodology, but make it clear to everyone using it.

Company D (Continente Card Department | MC)

- Maintain the improvement process that is underway.
- Make other departments understand the value of Agile and extend agility to other areas and teams of the company.

Company E (Farfetch)

- Understand the impact of the dissolution of the agility department.
- Continue to focus on decentralizing agile.

3.2. Discussion

This study aims to understand how companies implement, measure, and improve Agile. The analysis carried out revealed that, although all companies use the methodology, each one adapted it to their reality and need.

Since they are from different industries, sizes, and turnover, among others, their way of seeing and seeking agility is equally unique. Some started their activity already with some kind of Agile principle and believe it is transversal to the majority of the organisation, others have been implementing it over time.

Some considered the change in the company's culture as an opportunity, while others saw it as a challenge.

All companies recognise the benefits that Agile has brought to their daily organisation in:

- The definition of objectives
- The acceleration
- The identification of errors
- The greater ability to react flexibly to changing requirements
- And in the continuous optimization of processes related to management and projects.

However, difficulties related to resistance from workers, the high dependency between teams, and some inconsistent processes and practices across teams also emerged along this path.

Each company representative has a perception of their Agile maturity that is framed in their reality. Figure 6 presents a visual representation of what each respondent considers to be the level of Agile implementation within the company.

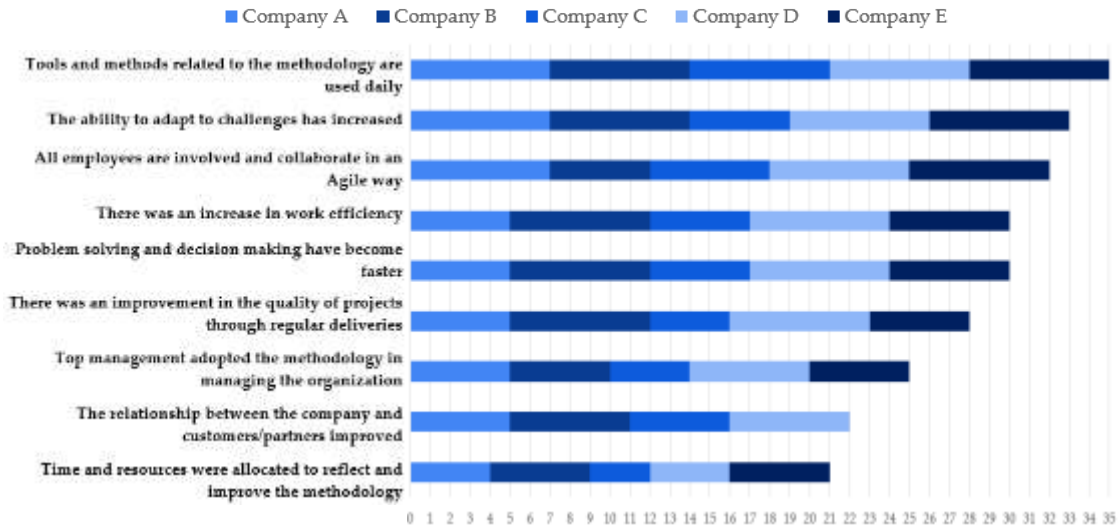

Figure 6: Answers about the degree of Agile implementation on a scale of 1 to 7
Source: Own elaboration

This reinforced our belief that the measurement of Agile maturity will always be conditioned to the organisational reality of each one since each company has its objectives, strategic pillars, and vision of what Agile is and can be within the organisation.

For the interviewees, Agile implementation can still be improved through the allocation of time and resources by the company. Additionally, the relations between the companies and their customers/clients did not improve significantly.

On the other hand, there was a positive consensus regarding the use of tools and methods daily, companies are now more capable of facing and adapting to new challenges, and everyone is involved in an Agile way.

The improvement of the methodology and its future strategic vision must be the subject of continuous assessment by companies. The implementation of assessments for the teams and the respective improvement through training, learning, and sharing of best practices provide crucial support to them. This will make them more involved and be able to exploit the benefits of agility to the fullest.

Concluding, we cannot fail to emphasize that the concept of Agility is increasingly leaving the reality of software development and spreading to other areas, proving to be a growing trend. Agility has many formats, but its benefits are transversal to its values. These enable companies to be more people-centric, promoting more collaboration, and self-organisation, as well as delivering more value to their stakeholders. While there are still challenges with adopting Agile, these can be overcome by supporting teams and providing them with the right tools and strategies.

3.3. Framework for Agile Emersion

The Framework is aimed at companies that are now looking to adopt the Agile methodology. It seeks to help companies to understand the intrinsic problems that led to the need for Agile and in setting a roadmap for adoption. The Framework illustrated in Figure 7 presents a sequence of seven phases for Agile Emersion.

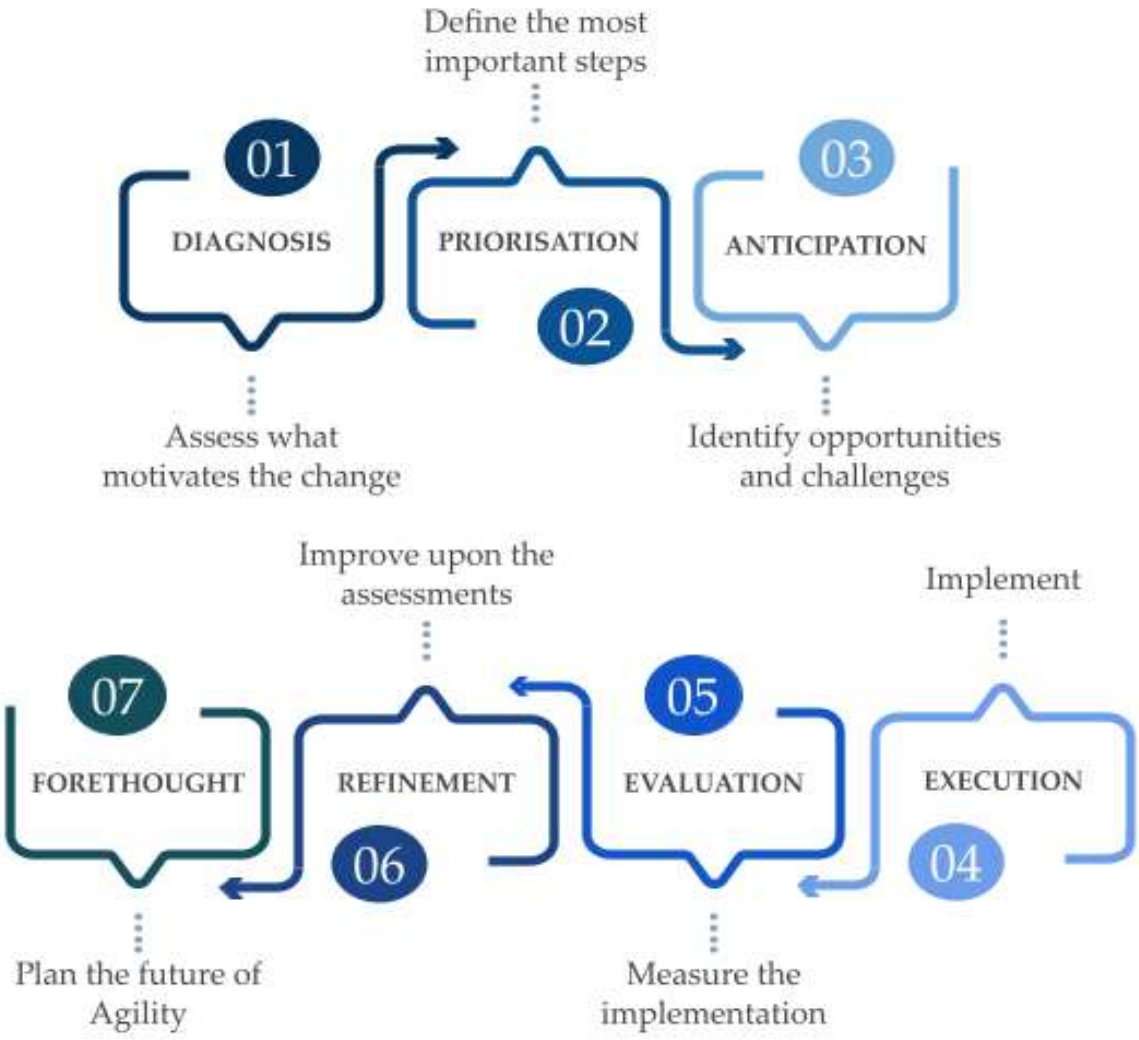

Figure 7: 7 steps Framework for Agile Emersion
Source: Own elaboration

STEP 1 - Assess what motivates the change

When companies are in the process of figuring out whether or not to implement Agile methodology, they should take into consideration what motivated the need for change.

- Be more flexible
- Improve routine management
- Better distribution of tasks
- Effective deliveries
- Promote transparency
- Foster collaboration
- Nurture continuous improvement

STEP 2 - Define the most important steps

Secondly, a company should ask itself how I am going to do it. From there, start by understanding and comparing to other companies who already adopted Agile. Are they similar in size, operating in the same country, or the same industry?

From there, decide on the start and depth of the implementation – is going to be a completely new enterprise? Is it going to start only in a department or a team? Is the creation of an agility department justified? Who will be the agent of change?

Regarding the internal structure, the company should understand what changes will be made. Here are some examples:

- Change processes and internal documentation (portfolio)
- Restructure departments or leadership structure
- Internal training needs
- Impact on internal culture
- Implications in the relationship with customers
- Changes to the financial structure

- Talent management

To help define these steps and continue the adoption, it is important to understand whether external help from consultants or specialists is needed. Realizing still if it makes sense to internalize someone new.

STEP 3 - Identify opportunities and challenges

Companies must be aware of what their strengths and weaknesses are and what could be seen as an opportunity or a challenge during the implementation process. Examples of opportunities and challenges are listed in Chapter 3.1.3.

STEP 4 - Implement

The implementation phase consists of four moments that are based on the decisions made by the company in the previous three steps.

1- It is necessary to decide which teams will be affected, communicate with them, and start the process. Will teams remain the same or will they become multidisciplinary? Are new teams going to be created for each new project, or will they remain stable over time? Is it going to start as a pilot programme, or will it impact a business area?

2- Consider whether team structures and leadership will change or stay the same. Will the teams incorporate a Scrum Master, a Product Owner and developers? Are the roles staying the same or will they change? Will new specialised workers be hired?

3- Establish who will guide the transformation. In the initial phase, the creation of an agility department with its respective agile coaches is fundamental. They are the engine of change and support the teams in any agile-related issue. Their expertise will enable teams to focus on their work, removing barriers to their workflow. Companies can also promote agile communities, where everyone can exchange impressions, ask questions, and share best practices, allowing a wider reach of the methodology and the empowerment of other employees.

4- Choose Agile tools that best suit the organisation and teams. The most commonly used are:
    - Scrum
    - Kanban
    - Scrumban
    - Jira - Manage backlog and day-to-day
    - Confluence - Manage documentation
    - Miro - Visual representation

It is suggested that companies leave it up to the teams to choose which tools best fit the team's way of working. However, it is important to define common guidelines across the organisation, which should be described in mapped processes or portfolio management tools. This allows all teams to use the "same language", facilitating interdependencies and relationships between them.

STEP 5 - Measure the implementation

Once again, if there is an agility team, they should be responsible for the evaluation/retrospective process. If there is no such team, the directors/managers of the teams must have this responsibility.

As there are different stakeholders involved, the assessment should be as inclusive and complete as possible, being 360º whenever possible. The layers of assessment can range from self-assessments to assessments by peers, managers and clients.

These assessments can be conducted by online questionnaires, and through team and individual meetings with those responsible for the assessment. Periodicity or key moments for these assessments should be previously defined and can be quarterly, four-monthly, biennially, or whenever a work cycle ends.

The assessments should effectively measure what each team is trying to achieve, for them to be able to deliver more value and be more agile. Assessments must avoid being generalised and superficial.

Generally, the most used indicators are:

- Performance
- Productivity
- Customer satisfaction
- Team satisfaction
- Duration of projects
- Product development
- Team motivation
- Quality of deliveries
- Leadership

There may also be different assessments for the product and the teams, differentiating the indicators between them (e.g., for a product could be sales, customer satisfaction, product failures, etc). Each company must understand whether this differentiation suits its value delivery.

The sharing of results is complex and requires a lot of thought. Individually, each person should know the result of their assessment and see where it can improve. The team as a whole should jointly have a retrospective session based on the results and develop an improvement plan side by side with the agile coach. Between teams, the sharing of results is more complex, as it can encourage unhealthy competition and comparison. As so, the company should decide at what level should the results be shared. However, when some challenges and problems cross several teams, it is favourable to promote collaborative actions between them, promoting collective learning.

STEP 6 - Improve upon the assessments

Continuous improvement after assessments is essential and it should always incorporate follow-up improvement plans.

Improved results can arise from different actions, which may be:

- Training

- Consulting
- Recruiting
- Workshops
- Sharing best practices

These improvement actions are also guided by agile coaches or managers who must be close to the team and regularly check on the metrics that are being improved. Additionally, people and teams must be instructed and encouraged to improve daily. When problems arise, they should be analysed and deconstructed quickly, and not only wait for a future evaluation.

STEP 7 - Plan the future of Agility

As the company grows, improves, and evolves, it is necessary to think about the future and adapt to the path it is taking. A company's strategy changes and refines, and the agility strategy must follow. This is the only way they can remain competitive and make their workforce evolve.

Companies that started with a small sample, will need to figure out when it is time to expand into other areas of the company and iterate the process. Additionally, they should actively continue to look for modern tools and improve their processes.

It is also necessary to look back at the market and see what other companies are doing towards agility.

Conclusion

Companies have always sought to achieve higher productivity, lower costs, deliver more quality, increase margins, and reduce lead times, among others. In recent decades, and following the emergence of the Agile Manifesto, companies have been adopting an Agile Management approach to achieve those same results. Based on the Manifesto's principles and values, companies now seek to emphasise flexibility, collaboration, individuals, customers, and simplicity. The growing complexity and unpredictability of business environments urged the need for companies to adopt this methodology, allowing them to respond quickly to changing customer needs, adapt to market changes and deliver high-quality products and services with lower lead times.

However, the methodology adoption process is complex and demanding, making organisational changes difficult. For this reason, a framework was created to support and guide companies in the process of adopting the Agile methodology, presenting them with different phases of Agile adoption (RQ).

The first action towards adopting Agile is to analyse the framework and adapt it to the company's reality. The first three steps are unique to each company as they require in-depth self-reflection on several variables. These will help the company to develop its own foundations for Agile adoption (RQ1). These variables and first steps will shape the following three, which are related to the implementation and continuous improvement of organisational agility. After the company has gone through a period of experimentation, assessment, and

improvement, the framework then leads companies to the last step of planning the future of agility, which will always go hand in hand with the company's overall strategy (RQ2).

This thesis contributes to the increase in the literature on organisational agility, namely Agile methodology implementation. The proposed framework brings valuable inputs for companies to empower themselves with mechanisms and methodologies that allow them to evolve with confidence in the integration of agility. Overall, companies can use this framework as a guideline to create more favourable conditions for business success and foster growth within.

The limited number of interviews conducted presents itself as the main limitation of this study. The constraints of finding companies willing to discuss internal procedures restricted the discovery of new insights and narrowed the observation. The second limitation relates to the fact that it was not possible to test the framework within the context of its application.

Based on this study, new studies may emerge to support companies to exceed themselves with the implementation of agility. Future studies may further develop this framework with the inclusion and analysis of new companies. Additionally, cross-interviewing several workers within the same companies would bring even more added value. Afterwards, the continuity of the investigation would be through the validation of this framework in real companies seeking Agile adoption.

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Attachments

Agile Method	Description	Reference
Crystal Methodologies	A family of methods for co-located teams of different sizes and criticality: Clear, Yellow, Orange, Red, Blue. The most Agile method, Crystal Clear, focuses on communication in small teams developing software that is not life-critical. Clear development has seven characteristics: frequent delivery, reflective improvement, osmotic communication, personal safety, focus, easy access to expert users, and requirements for the technical environment.	(Cockburn, 2004)
Dynamic software development Method (DSDM)	Divides projects into three phases: pre-project, project life-cycle, and post-project. Nine principles underlie DSDM: user involvement, empowering the project team, frequent delivery, addressing current business needs, iterative and incremental development, allow for reversing changes, high-level scope being fixed before project starts, testing throughout the lifecycle, and efficient and effective communication.	(Stapleton, 2003)
Feature-driven development	Combines model-driven and Agile development with emphasis on initial object model, division of work in features, and iterative design for each feature. Claims to be suitable for the development of critical systems. An iteration of a feature consists of two phases: design and development.	(Palmer & Felsing, 2002)
Lean software development	An adaptation of principles from lean production and, in particular, the Toyota production system to software development. Consists of seven principles: eliminate waste, amplify learning, decide as late as possible, deliver as fast as possible, empower the team, build integrity, and see the whole.	(Poppendieck & Poppendieck, 2003)
Scrum	Focuses on project management in situations where it is difficult to plan ahead, with	(Schwaber & Beedle, 2001)

Agile Method	Description	Reference
	mechanisms for "empirical process control"; where feedback loops constitute the core element. Software is developed by a self-organizing team in increments (called ''sprints"), starting with planning and ending with a review. Features to be implemented in the system are registered in a backlog. Then, the product owner decides which backlog items should be developed in the following sprint. Team members coordinate their work in a daily stand-up meeting. One team member, the scrum master, is in charge of solving problems that stop the team from working effectively.	
Extreme programming (XP; XP2)	Focuses on best practices for development. Consists of twelve practices: the planning game, small releases, metaphor, simple design, testing, refactoring, pair programming, collective ownership, continuous integration, 40-h week, on-site customers, and coding standards. The revised ''XP2" consists of the following ''primary practices": sit together, whole team, informative workspace, energized work, pair programming, stories, weekly cycle, quarterly cycle, slack, 10-minute build, continuous integration, test-first programming, and incremental design. There are also 11 ''corollary practices".	(Beck, 2004, 1999)

Attachment 1: Description of Agile Methods
Source: Dybå & Dingsøyr, 2008

Appendices

Processes/ Scrum Events	Definition
Kick-off meeting	• The main goals of the project are defined, and a brief product backlog is created.
Sprint	• Where ideas are turned into value. • The aim is to create and deliver an organised and error-free product. • Sprints include Sprint Planning, Daily Scrum, Sprint Review, and Retrospective Meeting. • The product backlog and scope are refined as needed. • Each Sprint can be considered a short project that should not surpass four weeks of work.
Sprint Planning	• Initiates the Sprint, as it lays out the work to be performed for the Sprint. • It is created a detailed product backlog. • The goal of the Sprint is defined. • The tasks for the Sprint are defined on the Sprint backlog. • A Sprint plan is created by and for the team members.
Daily Scrum	• The Daily Scrum is a 15-minute meeting where an overview of the work for the day is conducted. • It improves communication, promotes quick decision-making, and eliminates the need for unnecessary meetings for the day. If there are particular needs or events for the day, they are shared at this moment.
Sprint Review	• Conducted at the end of each Sprint. • The outcomes of the Sprint are examined, and future changes are pointed out. • The Scrum team presents the outcomes of the Sprint to the stakeholders and the next steps are established.
Retrospective Meeting	• The goal of the Retrospective Meeting is to review the work done and main occurrences in the Sprint and discuss future actions to increase the quality and effectiveness of the next Sprint.

Appendix 1: Summary of Scrum Events
Source: Own Elaboration adapted from Carneiro et al. (2018); Hayat et al. (2019); and Schwaber and Sutherland (2020)

Identification of the company
1. Name
2. Age
3. Sector
4. Dimension in terms of the number of employees
5. How is it divided
6. Operation (regional, national, international)
7. Revenue

Questions about the initiation of agile
1. How many employees does the company have?
2. How many departments or functional areas does it have?
3. Does the company operate totally in an agile way or only in certain departments or areas? a. Are there interactions between departments or is only applied inside the department? b. Teams are formed specifically for each project or are already pre-establish and do go much beyond that? Do they have a PM or a Director? (functional/ matrix/projectized) c. Who decides if the department/team is going to operate in an agile way? Is it the director, or is already pre-defined in strategic departments?
4. Was the company started with Agile principles, or was the methodology implemented later? a. When? (nº years) b. Why? c. What was intended? i. Routine management ii. Better distribution of tasks iii. Effective deliveries iv. Transparency v. Collaboration

vi. Continuous improvement
5. What were the steps given towards the implementation? a. What had to be considered and/or restructured to implement Agile management? i. Internal processes and documentation ii. Departments/leadership iii. Internal training iv. Internal culture v. Relationship with customers vi. Financial
6. During implementation, what did you identify that facilitated and supported and what hindered the process? a. Opportunities b. Difficulties/obstacles
7. What are the main Agile methods and/or tools used by the company/departments?
8. Key improvements after Agile implementation: a. From the following list of improvements commonly associated with Agile implementation rate, on a scale of 1 to 7, with 1 being a little perceived and 7 being very perceived. i. Greater organisational agility ii. Faster identification of errors iii. Greater ability to react flexibly to changing requirements iv. Less risk of false advances v. Continuous optimization of processes related to management and projects vi. Greater motivation within teams vii. Better cost/budget control viii. Better control throughout actions/projects b. Do you want to add any other felt improvements that are not listed?

9. Key difficulties after Agile implementation:
    a. From the following listing of difficulties normally associated with Agile implementation rate, on a scale of 1 to 7, with 1 being a little perceived and 7 being very perceived.

        i. The methodology did not fit with the company culture
        ii. Lack of support from management
        iii. Resistance from workers
        iv. High dependency between teams
        v. Lack of communication and collaboration
        vi. Cycles have become longer and require more resources
        vii. Need for highly skilled workers
        viii. Inconsistent processes and practices across teams

    b. Do you want to add any other difficulties that are not listed?

Questions about how Agile implementation is evaluated and improved
1. Are departments/companies currently being evaluated or already evaluated in the past your Agile implementation? a. If so, in what way? b. Who evaluates? c. What were the indicators/metrics? i. Performance ii. Productivity iii. Number of meetings iv. Customer satisfaction v. Team satisfaction vi. Duration of projects vii. Product development
2. How are these assessments used? a. For what purpose? (Are the results shared?) b. Were implemented Improvement processes afterwards? (PDCA – planning, doing, checking, and acting)
3. How do you improve the Agile implementation over time? a. More training

b. Consulting (internal/external) c. Process and team restructuring d. Hiring new people
4. Indicate from 1 to 7 the degree of Agile implementation through the following statements, with 1 not agreeing and 7 strongly agreeing: a. All employees are involved and collaborate in an Agile way b. Top management adopted the methodology in managing the organisation c. Tools and methods related to the methodology are used daily d. There was an increase in work efficiency e. There was an improvement in the quality of projects through regular deliveries f. The ability to adapt to challenges (flexibility/agility) has increased g. The relationship between the company and customers/partners improved h. Problem-solving and decision-making have become faster i. Time and resources were allocated to reflect and improve the methodology
5. What next steps does the company want to take to become even more agile or to improve implementation in the future?
6. Would you like to add any notes or points that haven't been covered here about what to consider when transitioning to a more agile organisation?

Appendix 2: Script of the interview
Source: Own Elaboration

Reasons to implement Agile	
Company A	• Need to create more and faster products • Escape the rigidity of the parent company • More Flexibility • Improve Routine Management • Better Distribution of Tasks • Effective Deliveries • Promote Transparency • Foster Collaboration • Nurture Continuous Improvement
Company B	• Need to respond to market changes and customers' needs faster • Better Distribution of Tasks • Effective Deliveries • Promote Transparency • Foster Collaboration • Nurture Continuous Improvement
Company C	• Support the parent company's strategy shift to a more product-led approach and as a change in the company's culture • Better Distribution of Tasks • Effective Deliveries • Promote Transparency • Foster Collaboration • Nurture Continuous Improvement
Company D	• The transition to Agile followed the launch of the Continente Card App. After the launch, the management of the App, the launch of new features, and other problems were not going smoothly, and the Business Development team needed to intervene to gain control. • Need to control the introduction of features, manage priorities, and accelerate decision-making in their main product (Continente Card App). • Monitor, and take control of the product and the development team • Promote Transparency • Foster Collaboration

Company E	• Farfetch sought agility from an early age, and leadership has always embraced the values and culture of agility. They always wanted to prioritize: o Effective deliveries o Promote Transparency o Foster Collaboration o Nurture Continuous improvement • Over time, the company has grown a lot in such a short time, making it impossible to maintain a personalized follow-up to each of the areas. • In addition, they developed a concept that agility should not be the exclusive responsibility of a department of agility, but everyone's responsibility. As so, the agility department was eliminated, enforcing the decentralization of agility. • The recent change was not an overnight process. The agility department was already in the process of disengagement with the activities on the ground. • Despite this transition, Agility remains one of the main pillars and drivers of Farfetch, along with continuous improvement.
Approaches to implement Agile	
Company A	• Created a new independent company that only operated in Agile digital product development, while still responding to a large group. Opened offices in two countries in search of expertise and to diversify investments. • Started by working together with an external company to create and recruit for this new company, and after a certain point, the parent company took over completely.
Company B	• With the alignment and overseeing of the board, a multidisciplinary team was created to analyse and document Agile best practices. • A model supported on a framework that worked several blocks was created including: o Portfolio Management o Team Roles and Formats o Practices o Culture and Training

	○ Talent Management ○ Measuring the performance, value delivery and happiness of the teams ○ Technology enablers to support agility • Then 4 teams were chosen to pilot the model, feedback was collected, and it was improved. • These teams had training and coaching, with dedicated people on the ground. Only later was the model extended to other teams in the organisation. • <u>Changes occurred</u>: ○ All internal processes have been reviewed to embrace agility ○ New training contents were created, and training was given to more than 400 people per year ○ Internal culture is being changed through workshops; talks; newsletters, and even in the change of designs of strategic objectives of the organisation to be a more agile organisation ○ New teams were created and trained, such as the Service Experience Design. Listening ○ Financially, some procedures were changed, as the way initiatives/projects are approved and how the annual budget is structured became different
Company C	• They already had a "model" of implementation, as the parent company and other subsidiaries already had a transition to Agile. • The company brought some people to Portugal to help with scaling and increase the speed of implementation. They hired consultants and companies to give training, and some were internalised. • <u>Changes occurred</u>: ○ An Agile repository was created with new processes and internal documentation ○ New leadership and management positions were created for functional areas and agility teams ○ There was a reinforcement of sharing the new vision and the positive impact it had on the internal culture

	○ The allocation and tracking of financial resources started to be carried out in shorter cycles to allow more flexibility ○ The Agile implementation is continuous and is being done in waves of implementation across the enterprise structure
Company D	• They had no model or orientation in the adoption phase, as the parent company did not have an Agile team or prior experience with the methodology. • The transition took place in less than a week due to the urgency. • At the time of the move, there was no specific training, just a few months later. The Business Development team and the person responsible for this transition did not know the Agile methodology and had to be self-taught on how the methodology worked. • The responsible on the MC side was nominated as PO, and the rest of the development team stayed at BIT.
Company E	• From the beginning, an agility team was created. Farfetch followed Daniel Pink's triangle of motivation: ○ 1) Purpose (product owner). ○ 2) Mastery (leads). ○ 3) Autonomy (agile coaches). Within the scope of autonomy, the goal of agile coaches was to create a sense of autonomy and continuous improvement within areas. • This methodology was so well adopted by the company early on, that it became part of the organisation's culture. • Although there is currently no Agile department, the company continues to develop with the same objective, but without direct support. The tools were already created in the past, and there is a team responsible for improving some of them.
Opportunities and challenges during transition	
Company A	• <u>Opportunities</u>: ○ Ability to start from scratch ○ Opportunity to attract specialized young talent which was also cheaper in the beginning. • <u>Challenges</u>: ○ Missing stability

	○ Freedom was limited ○ How do we integrate it all
Company B	• Opportunities: ○ Having a first top-down and then bottom-up approach helped to sell the concept and quickly show that it was the right approach for NOS ○ The administrators were very open to defining the model and its implementation in the field. It started with teams with a lot of visibility at NOS and then their success was desired by other teams, which facilitated the Change Management process • Challenges: ○ There are areas in the organisation that still consider certain profiles such as Agile Coach or Scrum Master to be superfluous (investment point of view) ○ Get people to think about an MVP concept, launch, test and collect feedback, and then design new ideas for the product. Teams are still very addicted to thinking about the "whole" and then going to pieces at the time of delivery ○ Change the company's culture to measure and share delivery value objectives and this will have repercussions on the prioritization of new ideas.
Company C	• Opportunities: ○ Mindset change ○ Growing from a process that already existed ○ Support from all areas of the company • Challenges: ○ Organisational rigidity
Company D	• Opportunities: ○ Ability to have greater control and management of the product and the team • Challenges: ○ Friction between BIT and BD team ○ Culture change
Company E	• Opportunities: ○ The company's need for project coordination

	○ Leadership involvement • <u>Challenges</u>: ○ Projects' size and complexity (multiyear projects)
The agile implemented	
Company A	• Company A feels like it is doing Agile, but it is still not an Agile company, as they feel constraints from the parent company that has strict policies and timelines, which impacts the level of agility they can achieve. • <u>Teams' Organisation:</u> ○ Holacracy system with functional areas and no top-down structure. All product teams that effectively work on the product are Agile. Currently, these teams do not have a director, but that will change in the upcoming transformation of the company. ○ The backbone departments such as HR, Finance, IT, and Support are not Agile but can work with some type of Agile, such as Scrum or Kanban. • <u>Tools/Methods:</u> ○ SCRUM ○ KANBAN ○ Scaled Agile Framework SAFe – more and more in this direction ○ SCRUMBAN – It depends on how much teams change scrum.
Company B	• 40 teams already work in an agile way • <u>Teams' Organisation:</u> ○ A team is created (or maintained) to respond to a product development need and people are selected according to their expertise. The company annually defines the strategy and the level of investment for each product and the teams normally remain stable. ○ These teams are transversal and multidisciplinary, with matrix management. This means that team members are part of the team and also part of a main department.

	○ The decision to be Agile or not comes from the management team, which analyses what makes the most sense for the new challenge in question. • <u>Tools/Methods:</u> ○ Depends on the maturity and challenge of each team ○ Scrum and Kanban ○ JIRA - Manage the backlog and day-to-day of the teams ○ Confluence - Documentation management ○ Tribes (Spotify) - In teams that work with different products but with a common purpose, the model of tribes is used, promoting more alignment between them.
Company C	• <u>Teams' Organisation</u> ○ Divided into functional areas (front office and back office). On top of that, there are work streams with product-oriented teams (Ex: Finance is divided in Treasury and inside it, there are different product teams such as inventory balance, invoices, etc). ○ These product teams are multidisciplinary and act on different functional areas with PO, Agilists, developers, and analysts. ○ Teams are created to work on a certain product and receive specific training from the Agile Coaches to be able to work in an Agile way. Sessions and workshops are held to define the objective, vision, and strategy of the product, as well as the skills of each person through a capability matrix. After that, the team is created, and the Agile cycle begins. ○ All of these areas have a meeting every 3 months to plan the next quarter. ○ Not all of the areas work in an Agile way. ○ The teams remain constant and follow the evolution of the product. The goal is that the product is always evolving and that the team guarantees the release of new features. ○ Each person reports to the manager of the allocated functional area. • <u>Tools/Methods</u>: ○ Team level: SCRUM; KANBAN; SCRUMBAN

	○ Organisational level: SAFe ○ Miro, Jira, and Confluence as daily tools
Company D	• <u>Teams' Organisation</u> ○ Some departments of the MC work with Agile, but only a small sample. Agile is often used in products, in contrast with project management. ○ Of all 6 teams of the Continente Card Department, only the Card team works in an agile way, and only in the App product. ○ Currently, the Card team is composed of 5 people operating side by side with BIT. On the business side, there is one person that is the Product Owner. On the BITs side, there are the Scrum Master and all the Developers. This product team remains constant over time, both at BIT and at the BD team. These teams work exclusively for this specific product. ○ Regarding the decision of adopting Agile, the Directors are the ones who decide whether the department works Agile or not, according to the need. ○ Normally, it is not asked at the beginning of a project which methodology will be used. In products, however, the methodology usually used is Agile (other platforms/apps; internal management, among others). ○ Currently, other teams are recognising the value that Agile brought to this team and want to implement it in their own products or projects. • <u>Tools/Methods:</u> ○ On a product level - SCRUM ○ Miro, and Jira as daily tools.
Company E	• They do not see Agile as a way of working, but rather as a way of being. • The agile coaches were distributed across different areas. • The company established decentralized programs, transforming team members into agile ambassadors within the teams. These ambassadors belong to agility communities, and

	exchange impressions, answer questions and share best practices, promoting the continuous development of agility. • They use a Portfolio strategy to coordinate day-to-day issues. The "Lean Portfolio Management" strategy allows all departments to use the "same language" to manage their portfolios and the interdependencies between them. This ensures that all initiatives have the same language, the same roles, and designations, as well as the same steps to be completed, and the same fields to be filled in, among others. This strategy continues to be developed and serves as decentralized support for the areas to organize themselves. • <u>Teams' Organisation</u> o Teams are usually multi-disciplinary, and the goal for them is to be stable and capable of determining the best way to work together and to evolve their systems, allowing more value delivery consistently. In the past, new teams were created for each initiative, however, the experience did not go well, as teams were not stable and had no ownership of the initiatives o In small-scale initiatives involving few areas, the responsibility for the action is representative of the most impactful area in the initiative. In the case of an aggregation of initiatives (projects) with greater complexity, there is a PM to ensure the delivery of smaller initiatives regularly. • <u>Tools/Methods:</u> o Each team defines which technique/tool fits their use. o Everyone uses Jira o Miro (visual tool). Looker Studio (data tool) o Typically, a mix of Scrum / Kanban / and XP. o There is also flow management, retrospectives, and ceremonies.
Measuring the Agile usage	
Company A	• They used to have an assessment before implementing SAFe as part of the transition and they defined some metrics to measure the implementation.

	• The team evaluates itself, and managers evaluate them on top. The team is left alone for self-reflection and there is another part for external assessment. • Product Assessment – There are metrics for the product teams regarding what the product is trying to achieve – sales, customer satisfaction, product development, etc. Team Assessment - From a team's perspective, they used to use metrics to compare teams' performance. • Currently, they are changing to a more self-reflective approach inside the team. The purpose is to introduce more team stability (how many people quit because they do not feel good in the team) and satisfaction. This shift is being conducted, as the previous method was promoting competition between teams, which was not positive for overall motivation. • However, this new assessment also presents challenges, as it can create incentives for managers to force people to stay in their teams or to manipulate the perception of team members. So, it is being implemented with time and in a balanced way.
Company B	• A team called the Centre of Excellence has the objective of disseminating Agile throughout the organisation. • Every 6 months an assessment is made with 60 questions to all teams to assess their Agile Maturity in various vectors. The assessment is applied to all team members on mindset, practices, roles, stakeholder management, priorities, roadmap vision, etc. There is a final result that encompasses +/- 8 colour vectors where teams analyse the current state of their maturity. • This assessment allows the team to have a vision of what should be the focus of improvement. The teams only see their own evaluation as they are not comparable, and each team has their own specificities. This also prevents unhealthy competition between teams. • In addition to this information, there are Agile Metrics dashboards (Quality, Commitment vs Delivery; team happiness levels, Productivity; etc) that are shared monthly with teams and stakeholders.

Company C	• The assessment framework was built by both the agile coaches and the directors of the functional areas. This assessment is conducted for the product teams and is led by the product lead, tech lead, and the agilist.
	• They have an assessment carried out every three months that guides teams to improve their performance.
	• There are 2 different assessments:
	  o Product Assessment – Main pillars: the evaluation of the final product, planning, execution, and continuous improvement.
	  o Team Assessment – Main pillars: company, learning, and skills.
	• Regarding individual performance evaluation, people working on products continue to be evaluated in their functional area by their director. The director communicates with all stakeholders and seeks feedback on the performance of each member of his department.

Company D	• There is an Agile monitoring and follow-up team for the teams at BIT as they are the ones who develop the app and truly work in Agile. Within the Continente Card Department, there is no type of evaluation regarding Agile, in addition to helping BIT in its assessment. • However, regarding the product (App), KPIs have been previously defined and are reviewed quarterly. These KPIs can be used for individual performance evaluations.

Company E	• In the past, there was a tool called FAR (Farfetch Agility Radar). It was implemented every 6 months (previously in 4 months) and applied to all areas. The coordination of this action was the responsibility of the Agility Team. FAR was the start of a cycle of continuous improvement in each area.
	• Assessments were made one-on-one; with the team; and with leadership. They measured:
	  o Performance
	  o Productivity
	  o Number of meetings
	  o Customer satisfaction

	○ Team satisfaction ○ Duration of projects ○ Product development ○ Team motivation ○ Quality of deliveries ○ Leadership • This tool is no longer being used. As time passed, they started to believe that each area should internally assess its needs and act in response to it and that the indicators were being measured superficially. Over time, they realized that there was no relationship between the quality and results of what was evaluated in the assessment and the value delivery in each area. • Currently, there is a survey that measures motivation, flexibility, retention, inclusion, and diversity in the organisation. It is not, nor has it ever been, the responsibility of the agility team to implement this survey.
Continuous improvement in Agile	
Company A	• There are shared dashboards that are accessible to everyone, but there is no promotion. There are regular company meet-ups where the metrics are shared. • From the product perspective, these reviews are integrated into the cycles of Sprints. There are quantitative measures and problems are identified and solved. From an organisational perspective, regularly check staffing measures, offboarding, and people satisfaction. • Based on the problem and its size, different initiatives to improve can happen, such as training, recruiting, consulting, etc. Hiring new people is more common in the product teams and not in the operations.
Company B	• Each team has an action plan to improve the vectors analysed every 6 months. The agile coaches assist several teams and make a summary every 2 months with the evaluation of the metrics and share the results with the team. • Despite not having access to the other teams' ratings, teams have access to the overall average of all the teams. If there is a

	problem across all teams, group training is given to all of them on that vector. • The improvement is continuous, and the Centre of Excellence team is responsible for the evolution and dissemination of improvements to the model followed by the organisation. They invest in training, workshops, sharing best practices with other companies, etc. • They are continually evolving the model with new insights from experiences with other teams, documentation and trying to maintain shared standards across all teams.
Company C	• As there are OKRs (Objectives and Key Results), there is a need to compare the assessments with these OKRs. • Within the levels of agility, they verify whether or not there is a higher level of agility from one assessment to another. • Results are only shared between areas that are within domains (Ex: in the website domain, there is an area related to checkout. Only that area knows its rating). Assessment results are not shared to avoid comparisons. • After the results, improvement plans and actions are defined for the next 3-month cycle. These actions can be workshops or joint sessions between the team. If there was a gap in a specific skill, new people are hired.
Company D	• KPIs are monitored monthly, and the backlog is defined quarterly based on the performance of some indicators in the previous quarter. If the indicators are in red, they are addressed in the following quarter through the definition of work actions and priorities. • The Business Development team adapts the methodology mainly based on the experiments they conduct. For them, it is more important to try different paths and see what works and what does not.
Company E	• The past FAR had several levels of improvement o To the team o To the department (various teams) o To the leadership o Continuous improvement outputs

	• The actions to improve were mainly:
	  o More training
	  o Consulting (internal/external)
	  o Restructuring of processes and teams
	  o Hiring new people
	  o There was everything. It depended on the area and the complexity
	• Currently, the areas continue to improve continuously at their own pace and when they feel the need in a decentralized way. They realized that when there are problems, they should be addressed quickly and not wait for a retrospective every 6 months.
	• Teams improve through the motivation of the agile ambassadors and by the agility communities created.
	• The goal is now to improve value delivery and workflow.

The future perspectives on Agile	
Company A	• They are moving away from the Holacracy system to a product structure with teams belonging to product areas. Each area will have specific managers. • A community of practices for functional parts will be created. These communities of practices will allow people from the same roles in different areas to share knowledge and standards, and so on. • The parent company has achieved a level of agility in many areas after implementing SAFe, but for Company 1 this is a step back in terms of flexibility but is a step forward in terms of aligning both worlds, as previously the companies were misaligned, and it was creating a lot of conflicts. • The idea now is once both companies get to a common ground, that goal is to iterate and create more business agility together. Probably new companies are going to be created to create a more agile organisation.
Company B	• Although Agile is already well disseminated within the company, they consider it to be far from being a fully Agile company. They consider that this will never happen in the

	organisation due to its size and because there are initiatives in which this work model is not ideal. • The next steps are to help Product Owners understand how to measure the impact on the stakeholders involved: What is the real impact we are delivering to customers? What is the internal impact on the company? • Within the processes, continuously improve all available content. Improve PO and SM training and content so that they can continue to learn and innovate. • The foundations of Agile are well laid and it's easy to teach new people in the organisation. Now, they want to improve and help in the growth and development of those already in the company. • They now want Agile to break out of the IT bubble.
Company C	• The objective now is to continue to make the methodology evolve in the organisation. • It is increasingly necessary to make teams aligned with the systems and programs used. • Understand how to make teams that are not yet agile a little more agile in daily tasks.
Company D	• Currently, they recognize that they are well underway in the App project, but that they can still improve. In a more global view, they believe that the company needs and will benefit if more areas adopt this way of managing products and projects.
Company E	• They are yet to understand the impact of the dissolution of the agility department, but they believe that it is already possible to see the effects currently. • The focus now is on decentralising agility and maintaining and reinforcing the motto that continuous improvement is everyone's responsibility.

Appendix 3: Analysis of the interview responses according to the seven premises.
Source: Own Elaboration.